

| FORM PTO-1449 MODIFIED  |  |   |  |       | Docket No.:<br>C330.104.101                      |  |        | J Oppication Na U 4 |             |  |
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| INFORMATION DISCLOSURE CITATION<br>IN AN APPLICATION  |  |   |  |       | APPLICANT: Nigel Langford et                     |  |        | t al.               |             |  |
|   |  |   |  |       | NATIONAL STAGE ENTRY: October 12, 2004           |  |        |                     |             |  |
|   |  |   |  |       | GROUP ART UNIT: Unknown                          |  |        |                     |             |  |
| U.S. PATENT DOCUMENTS   |  |   |  |       |  |  |        |                     |             |  |
| EXAMINER  | DOCUMENT NO.   |   |  |       | CLASS  |  |        | FILING I            |             |  |
| INITIAL   | 5 626 025  | DATE  | NAME   |       |  | SUBCLASS   |        | APPROPRIATE         |             |  |
| JC  | 5,636,035  | 06-1997   | Whittaker e                                      | t al. |  |  | •      | -                   |             |  |
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| FOREIGN PATENT DOCUMENTS  |  |   |  |       |  |  |        |                     |             |  |
| EXAMINER  | DOCUMENT NO.   |   | T  |       |  |  | ,,,,,, | TRANSLATION         |             |  |
| INITIAL   | 0.977.454.45   | DATE  | COUNTR   | Y     | CLASS  | SUBC   | LASS   | YES                 | NO          |  |
| JC  | 0 877 454 A1   | 11-1998   | EP   |       |  | $\vdash$   |        |                     | X           |  |
| JC  | 43 31 847 A1   | 04-1004   | DE   |       |  |  | _      | -                   |             |  |
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|   | OTHER DOC!   | IMENTS (in  | luding Auth                                      | IOF T | tle Date Per                                     | tinent l   | Pages  | etc.)               | l           |  |
| JC  | OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)  Bracewell, "The Fourier Transform and its Applications," pp.177-180, 1965. |   |  |       |  |  |        |                     |             |  |
| JC  | Patent Abstracts of Japan, 07/27/1988, Abstract of JP 63182550   |   |  |       |  |  |        |                     |             |  |
| JC  | Namjou et al., "S  | ensitive Absor  | ption Spectro                                    | scopy | with a Room                                      |  |        |                     |             |  |
|   | Feedback Quantu  | Feedback Quantum Cascade Laser," Optics Letters Vo. 23, No. 3, pp. 219-221, 1998.   |  |       |  |  |        |                     |             |  |
| JC  | Duxbury, "Infrared Vibraton-Rotation Spectroscopy," Chapters 5 and 9, 2000.  |   |  |       |  |  |        |                     |             |  |
|   | Kosterev et al., "   | Kosterev et al., "Trace-gas Detection in Ambient Air with a Thermoelectrically Cooled, Pulsed   |  |       |  |  |        |                     |             |  |
| JC  | Quantum-Cascad<br>12-2000.   | Quantum-Cascade Distributed Feedback Laser," Applied Optics Vo. 39, No. 36, pp. 6866-6872,  |  |       |  |  |        |                     |             |  |
| 70  |  | Werle et al., "Near and Mid-Infrared Laser-Optical Sensorss for Gas Analysis," Optics and Lasers  |  |       |  |  |        |                     |             |  |
| JC  | in Engineering, p  | in Engineering, pp. 101-114, 2001.  |  |       |  |  |        |                     |             |  |
| JC  |  | Webster et al., "Quantum-Cascade Laser Measurements of Stratospheric Methane and Nitrous  |  |       |  |  |        |                     |             |  |
|   |  | Oxide," Applied Optics, Vol. 40, No. 3, pp. 321-326, 01-2001.   |  |       |  |  |        |                     |             |  |
| JC  | International Con  | Beyer et al., "Compact System for Gas-Measurements with Quantum-Cascade-Lasers," Third International Conference on Turntable Diode Laser Spectroscopy, 07-2001. |  |       |  |  |        |                     |             |  |
|   | Normand et al., "Characterisation of the Spectral Behaviour of Pulsed Quantum Cascade Lasers   |   |  |       |  |  |        |                     |             |  |
| JC  | using a High Resolution Fourier Transform Infrared Spectrometer," Optics Communications, 197,  |   |  |       |  |  |        |                     |             |  |
|   | pp. 115-120, 09/1  | pp. 115-120, 09/15/2001.  |  |       |  |  |        |                     |             |  |
| Kosterev et al., "Trasportable Automated Ammonia Sensor Based on a Pulsed Thermoelectr  |  |   |  |       |  |  |        |                     |             |  |
| JC  | Cooled Quantum   01/20/2002.   | Cooled Quantum-Cascade Distributed Feedback Laser," Applied Optics, Vol. 41, No. 3,   |  |       |  |  |        |                     |             |  |
| Copy of International Search Report for Application No. PCT/GB03/01510.   |  |   |  |       |  |  |        |                     |             |  |
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